



information

ADDITIONAL FACTS ABOUT THE EXPLOSIVE DESTRUCTION SYSTEM

What is the Explosive Destruction System?

The EDS is a transportable treatment system designed to destroy explosively configured World War I and World War II era munitions at a recovery site (e.g. 75mm artillery shell, 8-inch Livens projectile, 4.2-inch mortar shell). The EDS can be used to detonate chemical munitions safely and neutralize the associated chemical agents without venting.

Why was the EDS developed?

The EDS is the U.S. Army's response for destruction of chemical warfare materiel that may not be safe to transport or place in long-term storage. The EDS is an innovative alternative to the open detonation of explosively configured munitions.

What are the major components of the EDS?

The two major components of the EDS are the containment vessel and the fragment suppression system. The containment vessel is a 50-gallon stainless steel containment vessel, in which munitions will be destroyed. This vessel is also designed to withstand an explosive force equal to approximately one pound of dynamite. Due to its stainless steel construction and corrosion resistance, the containment vessel can be used to treat a wide variety of munitions and chemical agents.

The EDS contains a fragment suppression system that absorbs the impact from exploding munitions, and allows the containment vessel to withstand hundreds of detonations before the vessel has to be replaced. Additionally, the EDS includes three 25-gallon containers for water and neutralizing reagents and a hydraulic oscillation sub-system that are used during the neutralization process.

The use of the EDS as a treatment system is extremely flexible, because of its 316 stainless steel alloy construction. As stainless steel is resistant

to corrosion, a wide variety of chemicals can be treated in the EDS.

How does the EDS operate?

Step 1

Commercial explosives are placed on the recovered chemical munition, which is then placed inside the containment vessel and sealed.

Step 2

The commercial explosives are remotely detonated. This opens the outer casing of the munition. The containment vessel prevents the release of metal fragments and chemical agent into the environment.

Step 3

Neutralizing reagents (chemicals that react with the agent to form a less toxic substance) are then pumped into the containment vessel where they will react with the munition's chemical agent.

Step 4

The vessel heaters are turned on, and the hydraulic oscillation sub-system mixes the reacting chemicals to ensure complete neutralization.

Step 5

The resulting liquid is drained into drums for disposal at a permitted facility.

Step 6

After detonation, the air inside the containment vessel is filtered using a carbon filter before being released into the environment.

Has the EDS been proven to be effective at destroying chemical weapons?

The EDS Phase I has undergone extensive testing in the United Kingdom, as part of a cooperative testing and evaluation program. Phosgene, an industrial chemical, and the chemical agents mustard and GB sarin (nerve agent) were used to test the EDS. The

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EDS was successful in neutralizing these agents without any release of agent to the environment. The testing was so successful that the U.S. Army is planning to build a second EDS that will have a larger explosive capacity.

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